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PTO/SB/08A (08-00)

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			<i>Complete if Known</i>		
			Application Number	10/781,801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2817	
			Examiner Name	Wachman	
Sheet	1	of	8	Attorney Docket Number	IMMR-038/06US

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
W		5,785,630		Bobick, et al.	07/28/1998
W		5,766,016		Sinclair et al.	06/16/1998
W		5,547,382		Yamasaki et al.	08/20/1996
W		5,466,213		Hogan et al.	11/14/1995
W		5,334,027		Wherlock	08/02/1994
W		5,309,140		Everett, Jr., et al.	05/03/1994
W		5,299,810		Pierce et al.	04/05/1994
W		5,275,174		Cook	01/04/1994
W		5,271,290		Fischer	12/21/1993
W		5,240,417		Smithson et al.	08/31/1993
W		5,212,473		Louis	05/18/1993
W		5,078,152		Bond et al.	01/07/1992
W		5,038,089		Szakaly	08/06/1991
W		5,035,242		Franklin et al.	07/30/1991
W		5,022,407		Horch et al.	06/11/1991
W		5,019,761		Kraft	05/28/1991
W		4,934,694		McIntosh	06/19/1990
W		4,930,770		Baker	06/05/1990
W		4,891,764		McIntosh	01/02/1990
W		4,794,392		Selinko	12/27/1988
W		4,713,007		Alban	12/15/1987
W		4,708,656		de Vries et al.	11/24/1987
W		4,599,070		Hladky et al.	07/08/1986
W		4,581,491		Boothroyd	04/08/1986
W		4,513,235		Acklam et al.	04/23/1985
W		4,236,325		Hall et al.	12/02/1980
W		4,160,508		Salisbury, Jr.	07/10/1979
W		3,911,416		Feder	10/07/1975
W		3,903,614		Diamond et al.	09/09/1975
W		3,902,687		Hightower	09/02/1975
W		3,623,064		Kagan	11/23/1971
W		3,517,446		Corlyon et al.	06/30/1970
W		3,497,668		Hirsch	02/24/1970
W		3,220,121		Cutler	11/30/1965
W		3,157,853		Hirsch	11/17/1964

Examiner Signature	<i>Wachman</i>	Date Considered	8-21-04
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¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

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			Application Number	10/781,801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2857 -	
Examiner Name	Wachman				
Sheet	2	of	8	Attorney Docket Number	IMMR-038/06US

					Class	Subclass	
291	2,906,179			Bower	-	-	09/29/1959
291	3,490,059			Paulsen et al.	-	-	01/13/1970
291	3,531,868			Stevenson	-	-	10/06/1970
291	3,875,488			Crocker et al.	-	-	04/01/1975
291	3,890,958			Fister et al.	-	-	06/24/1975
291	3,944,798			Eaton	-	-	03/16/1976
291	4,148,014			Burson	-	-	04/03/1979
291	4,216,467			Colston	-	-	08/05/1980
291	4,448,083			Hayashi	-	-	05/15/1984
291	4,550,221			Mabuth	-	-	10/29/1985
291	4,571,834			Fraser et al.	-	-	02/25/1986
291	4,601,206			Watson	-	-	07/22/1986
291	4,638,798			Shelden et al.	-	-	01/27/1987
291	4,653,011			Iwano	-	-	03/24/1987
291	4,654,648			Herrington et al.	-	-	03/31/1987
291	4,676,002			Slocum	-	-	06/30/1987
291	4,679,331			Koontz	-	-	07/14/1987
291	4,688,983			Lindbom	-	-	08/25/1987
291	4,704,909			Grahn et al.	-	-	11/10/1987
291	4,750,487			Zanetti	-	-	06/14/1988
291	4,769,763			Trieb et al.	-	-	09/06/1988
291	4,787,051			Olson	-	-	05/16/1986
291	4,791,934			Brunnett	-	-	08/07/1986
291	4,798,919			Miesler et al.	-	-	03/11/1988
291	4,800,721			Cemenska et al.	-	-	02/13/1987
291	4,803,413			Kendig et al.	-	-	07/15/1986
291	4,807,152			Lane et al.	-	-	03/02/1987
291	4,811,608			Hilton	-	-	11/06/1986
291	4,815,006			Andersson et al.	-	-	09/16/1987
291	4,819,195			Bell et al.	-	-	01/20/1987
291	4,840,634			Muller et al.	-	-	06/10/1987
291	4,879,556			Duimel	-	-	10/26/1987
291	4,888,877			Enderle et al.	-	-	12/26/1989
291	4,891,889			Tomelleri	-	-	01/09/1990
291	4,907,970			Meenen, Jr.	-	-	03/13/1990
291	4,945,501			Bell et al.	-	-	07/31/1990
291	4,961,138			Gorniak	-	-	10/02/1990
291	4,961,267			Herzog	-	-	10/09/1990
291	4,962,591			Zeller et al.	-	-	10/16/1990
291	4,982,504			Söderberg et al.	-	-	01/08/1991
291	5,007,085			Greanias et al.	-	-	04/09/1991
291	5,007,300			Siva	-	-	04/16/1991

Examiner Signature	<i>Paul Wachman</i>	Date Considered	8-21-04
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			<i>Complete if Known</i>		
			Application Number	10/781801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2.857	
			Examiner Name	Wuchman	
Sheet	3	of	8	Attorney Docket Number	IMMR-038/06US

				<i>Class Subclass</i>			
<i>W</i>		5,040,306		McMurtry et al.	—	—	08/20/1991
<i>W</i>		5,050,608		Watanabe et al.	—	—	09/04/1990
<i>W</i>		5,072,361		Davis et al.	—	—	02/01/1990
<i>W</i>		5,088,046		McMurtry	—	—	07/28/1989
<i>W</i>		5,088,055		Oyama	—	—	02/22/1990
<i>W</i>		5,095,303		Clark et al.	—	—	03/27/1990
<i>W</i>		5,103,404		McIntosh	—	—	12/20/1989
<i>W</i>		5,116,051		Moncreif et al.	—	—	06/08/1990
<i>W</i>		5,125,261		Powley	—	—	05/28/1991
<i>W</i>		5,126,948		Mitchell et al.	—	—	11/08/1989
<i>W</i>		5,128,671		Thomas, Jr.	—	—	04/12/1990
<i>W</i>		5,131,844		Marinaccio et al.	—	—	04/08/1991
<i>W</i>		5,132,672		Clark	—	—	07/21/1992
<i>W</i>		5,134,782		Breyer et al.	—	—	08/04/1992
<i>W</i>		5,139,261		Openiano	—	—	08/18/1992
<i>W</i>		5,142,506		Edwards	—	—	08/25/1992
<i>W</i>		5,142,931		Menahem	—	—	09/01/1992
<i>W</i>		5,143,505		Burdea et al.	—	—	09/01/1992
<i>W</i>		5,148,377		McDonald	—	—	09/15/1992
<i>W</i>		5,150,023		Toyama et al.	—	—	09/22/1992
<i>W</i>		5,168,453		Nomaru et al.	—	—	12/01/1992
<i>W</i>		5,181,181		Glynn	—	—	01/19/1993
<i>W</i>		5,184,306		Erdman et al.	—	—	02/02/1993
<i>W</i>		5,184,319		Kramer	—	—	02/02/1990
<i>W</i>		5,185,561		Good et al.	—	—	07/23/1991
<i>W</i>		5,187,874		Takahashi et al.	—	—	02/08/1991
<i>W</i>		5,189,806		McMurtry et al.	—	—	08/17/1992
<i>W</i>		5,204,824		Fujimaki	—	—	08/23/1990
<i>W</i>		5,208,763		Hong et al.	—	—	09/14/1990
<i>W</i>		5,209,131		Baxter	—	—	10/12/1990
<i>W</i>		5,220,260		Schuler	—	—	10/24/1991
<i>W</i>		5,228,356		Chuang	—	—	11/25/1991
<i>W</i>		5,230,623		Guthrie et al.	—	—	12/10/1991
<i>W</i>		5,243,266		Kasagami et al.	—	—	07/02/1992
<i>W</i>		5,246,316		Smith	—	—	03/06/1992
<i>W</i>		5,251,127		Raab	—	—	07/31/1990
<i>W</i>		5,251,156		Heier et al.	—	—	07/11/1991
<i>W</i>		5,259,120		Chapman et al.	—	—	07/20/1992
<i>W</i>		5,259,894		Sampson	—	—	01/26/1990
<i>W</i>		5,264,768		Gregory et al.	—	—	10/06/1992
<i>W</i>		5,296,846		Ledley	—	—	10/05/1992

Examiner Signature	<i>Pat Wuchman</i>	Date Considered	8-21-04
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				<i>Complete if Known</i>	
				Application Number	10/281,801
				Filing Date	February 20, 2004
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	2857
				Examiner Name	Wachman
Sheet	4	of	8	Attorney Docket Number	IMMR-038/06US

				<i>Class Subclass</i>		
<i>W</i>		5,347,476		McBean, Sr.	—	—
<i>W</i>		5,351,692		Dow et al.	—	06/09/1993
<i>W</i>		5,354,162		Burdea et al.	—	08/31/1992
<i>W</i>		5,379,663		Hara	—	11/22/1993
<i>W</i>		5,384,460		Tseng	—	11/03/1993
<i>W</i>		5,389,865		Jacobus et al.	—	12/02/1992
<i>W</i>		5,396,267		Bouton	—	01/07/1993
<i>W</i>		5,397,323		Taylor et al.	—	10/30/1992
<i>W</i>		5,402,582		Raab	—	02/23/1993
<i>W</i>		5,412,880		Raab	—	—
<i>W</i>		5,414,337		Schuler	—	06/11/1993
<i>W</i>		5,417,696		Kashuba et al.	—	03/23/1993
<i>W</i>		5,428,748		Davidson et al.	—	09/24/1992
<i>W</i>		5,429,140		Burdea et al.	—	06/04/1993
<i>W</i>		5,429,682		Harlow, Jr. et al.	—	08/19/1993
<i>W</i>		5,436,542		Petelin et al.	—	01/28/1994
<i>W</i>		5,445,166		Taylor	—	04/06/1994
<i>W</i>		5,465,323		Mallet	—	09/19/1990
<i>W</i>		5,467,289		Abe et al.	—	10/12/1993
<i>W</i>		5,467,763		McMahon et al.	—	07/20/1994
<i>W</i>		5,510,977		Raab	—	08/02/1994
<i>W</i>		5,512,919		Araki	—	03/30/1993
<i>W</i>		5,513,100		Parker et al.	—	06/10/1993
<i>W</i>		5,526,576		Fuchs et al.	—	09/12/1994
<i>W</i>		5,576,727		Rosenberg et al.	—	06/05/1995
<i>W</i>		5,591,924		Hilton	—	04/23/1993
<i>W</i>		5,601,084		Sheehan	—	05/26/1995
<i>W</i>		5,611,147		Raab	—	03/03/1995
<i>W</i>		5,623,582		Rosenberg	—	07/14/1994
<i>W</i>		5,625,576		Massie et al.	—	10/01/1993
<i>W</i>		4,593,470		Davies	—	08/13/1984
<i>W</i>		4,775,289		Kazerooni	—	09/25/1987
<i>W</i>		4,857,816		Rogozinski et al.	—	10/08/1987
<i>W</i>		4,949,119		Moncrief et al.	—	01/12/1989
<i>W</i>		5,193,963		McAffee et al.	—	10/31/1990
<i>W</i>		5,629,594		Jacobus et al.	—	10/16/1995
<i>W</i>		5,701,140		Rosenberg et al.	—	07/12/1994
<i>W</i>		5,794,356		Raab	—	11/18/1996
<i>W</i>		5,880,714		Rosenberg et al.	—	01/15/1997
<i>W</i>		6,078,876		Rosenberg et al.	—	10/29/1996
<i>W</i>		6,125,337		Rosenberg et al.	—	12/15/1998
<i>W</i>		4,703,443		Moriyasu	—	10/1987
<i>W</i>		5,461,797		Royer et al.	—	10/1995
<i>W</i>		6,366,831	BI	Raab	—	04/02/2002
<i>W</i>		6,535,794	BI	Raab	—	03/18/2003

Examiner Signature	<i>Hal Wachman</i>	Date Considered	8-21-04
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			Application Number	101781801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2857	
			Examiner Name	Wachman	
Sheet	5	of	8	Attorney Docket Number	IMMR-038/06US

FOREIGN PATENT DOCUMENTS									
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY		T ⁴	
		Office ¹	Number ²	Kind Code ³ (if known)					
W		EPO	0 349 086	AI	Stork Kwant B.V.	—	—	01/03/1990	
W		WO	WO9520787		PLT	—	—	08/03/1995	
W		WO	WO9520788		PLT	—	—	08/03/1995	
W		WO	WO9502801		PLT	—	—	01/26/1995	
W		WO	WO9532459		PLT	—	—	11/30/1995	
W		EPO	470257		EPO	—	—	02/12/1992	
W		EPO	541500		EPO	—	—	05/12/1993	
W		EPO	655301		EPO	—	—	11/15/1993	
W		EPO	640902		EPO	—	—	03/01/1995	
W		EPO	634150		EPO	—	—	01/18/1995	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
W		Baigrie, "Electric Control Loading – A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990		
W		Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993. <i>Unpublished</i>		
W		Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90		
W		Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985		
W		Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819, Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990. <i>Unpublished</i>		
W		Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 <i>IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993		
W		Snow et al., 'Model-X Force-Reflecting-Hand-Controller,' NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989		
W		Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990. <i>Unpublished</i>		

Examiner Signature	<i>Wachman</i>	Date Considered	8-21-04
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¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.

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		Filing Date	February 20, 2004		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2857		
Examiner Name	W. H. H. H.				
Sheet	6	of	8	Attorney Docket Number	IMMR-038/06US

✓	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90	
✓	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993. (No mention)	
✓	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992. (No mention)	
✓	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI1-11:00, pp. 332-337. (No date)	
✓	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992. (No mention)	
✓	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992. (No mention)	
✓	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993	
✓	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990. (No mention)	
✓	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90	
✓	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980. (No mention)	
✓	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981	
✓	McAfee et al., "Teleoperator Subsystem/Teleoperator Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL 1988, JPL D-5172. (No mention)	
✓	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95	
✓	Jacobsen et al., "High Performance, Dexterous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991	
✓	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992	
✓	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990	
✓	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988	
✓	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992	
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Examiner Signature	<i>W. H. H. H.</i>	Date Considered	8-21-04
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		Application Number	10781801
		Filing Date	February 20, 2004
		First Named Inventor	Louis B. ROSENBERG
		Group Art Unit	2857
Examiner Name	L. H. H. H. H.		
Sheet 7 of 8	Attorney Docket Number	IMMR-038/06US	

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		Application Number	101 281 801		
		Filing Date	February 20, 2004		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2852		
		Examiner Name	Wachner		
Sheet	8	of	8	Attorney Docket Number	IMMR-038/06US

<i>W</i>	Fischer, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990. <i>(No month)</i>	
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<i>W</i>	Hannaford, Blake et al., "Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator," IEEE May/June 1991, Vol. 21, No. 3, pp. 620-633.	
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<i>W</i>	Herndon, J.N. et al., "The State-of-the-Art Model M-2 Maintenance System," Proc. of the 1984 National Topical Meeting on Robotics and Remote Handling in Hostile Environments, American Nuclear Society, pp. 59-65. <i>(No month)</i>	
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<i>W</i>	"Foot-Operated Mouse," IBM Technical Disclosure Bulletin, April 1986, Vol. 28, No. 11, <i>1 page (No month)</i>	
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Examiner Signature	<i>He Wachner</i>	Date Considered	8-21-04
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